

METHOD AND APPARATUS FOR PROCESSING NON-PLANAR VIDEO GRAPHICS PRIMITIVES

ABSTRACT OF THE INVENTION

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A method and apparatus for processing non-planar video graphics primitives is presented. Vertex parameters corresponding to vertices of a video graphics primitive are received, where the video graphics primitive is a non-planar, or higher-order, video graphics primitive. A cubic Bezier control mesh is calculated using the vertex parameters provided for the non-planar video graphics primitive. Two techniques for calculating control points included in the cubic Bezier control mesh along the edges of the non-planar video graphics primitive are described. The central control point is determined based on the average of a set of reflected vertices, where each of the reflected vertices is a vertex of the non-planar video graphics primitive reflected through a line defined by a pair of control points corresponding to the vertex. The resulting cubic Bezier triangular control mesh is evaluated using the Bernstein polynomial at the vertices of the planar video graphics primitives that result from tessellation, where the number of planar video graphics primitives produced can be controlled based on a selected tessellation level. The resulting planar video graphics primitives are then provided to a conventional 3D pipeline for processing to produce pixel data for blending in the frame buffer.